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REMARKS

Claims 1 -- 34 are pending in the present Application. Claims 1, 11, 12, 13, 14, 17, 18, 22 and 28 have been amended, leaving Claims 1 -- 34 for consideration upon entry of the present Amendment. No new matter has been introduced by these amendments. Reconsideration and allowance of the claims are respectfully requested in view of the above amendments and the following remarks.

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: all parts of Figure 5.

The drawing in Figure 5 has now been amended to remove all numerals indicated in the Figure. A replacement drawing with all numerals removed is submitted herewith. Applicants respectively request a withdrawal of the objection under 37 CFR 1.84(p)(5).

Amended Claims

Claims, 1, 22 and 28 have been amended to better define the invention. Support for the amendment can be found in at least Claim 4 as originally filed.

Claims 11 and 12 have been amended to correct for inadvertent typographical errors. This amendment was not made to overcome any cited references.

Claims 13, 17 and 18 have been amended to provide for the proper antecedent basis. These amendments were not made to overcome any cited references.

Claim 14 has been amended to provide for the proper punctuation, which was inadvertently omitted. The claim as originally filed did not end with a full stop. A full stop has now been included. This amendment was not made to overcome any cited references.

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Claim Rejections Under 35 U.S.C. § 112, Second Paragraph

Claims 11 - 18 stand rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. (Office Action dated 12/28/2004, page 2)

In particular, the Examiner has stated that "Claims 11 and 12 refer to 'the thermoplastic polymer' of Claim 1. However Claim 1 cites two different thermoplastic polymers. It is unclear whether the applicant intends to further limit the polymer of the core layer or the polymer of the first cap layer." (Office Action dated 12/28/2004, page 3)

Applicants have currently amended Claims 11 and 12 to indicate that the thermoplastic polymers listed in Claims 11 and 12 can be used in either the core layer, the first cap layer or in both the core layer and the first cap layer. Applicants respectfully request a withdrawal of the § 112, second paragraph rejection and an allowance of the Claims 11 and 12.

The Examiner has also stated "Claim 13 recites the limitation "the polyester" in line 1." (Office Action dated 12/28/2004, page 3)

Applicants have amended Claim 13 to depend from Claim 12 to provide the proper antecedent basis. Applicants respectfully request a withdrawal of the § 112, second paragraph rejection and an allowance of Claim 13.

Claim 17 and Claim 18 recite the limitation "the UV absorbers" in line 1. (Office Action dated 12/28/2004, page 3) Applicants have amended Claims 17 and 18 by including the term 'electromagnetic radiation absorbing additive' instead of 'the UV absorbers' thereby providing the proper antecedent basis for both claims. Applicants respectfully request a withdrawal of the § 112, second paragraph rejection and an allowance of the Claims 17 and 18.

Claim Rejections Under 35 U.S.C. § 102(b)

Claims 1, 3, 6 – 8, 10 – 23, 27 – 31 and 33 - 34 stand rejected under 35 U.S.C. § 102(b), as allegedly being anticipated by U.S. Patent Application No. 2002/0182389 to Döbler. (Office Action dated 12/28/2004, page 3)

In making the rejection, the Examiner has stated that Döbler discloses a second layer containing an infrared absorber and an ultraviolet absorber. (Office Action dated 12/28/2004, page 3) Applicants respectfully traverse this rejection.

To anticipate a claim, a reference must disclose each and every element of the claim. *Lewmar Marine v. Varient Inc.*, 3 U.S.P.Q.2d 1766 (Fed. Cir. 1987).

Claim 1 as presently amended is directed to a multilayered sheet comprising a core layer comprising a thermoplastic polymer and an IR absorbing additive; wherein the IR absorbing additive is a boride.

As noted by the Examiner, Döbler discloses a second layer containing an infrared absorber and an ultraviolet absorber. (see Abstract) Döbler teaches that suitable infra red absorbers are organic absorbers. (see Page 3, paragraph [0047]) Döbler further teaches that suitable infra red absorbers for use in the second layer are phthalocyanines, naphthalocyanines, metal complexes, azo dyes, anthraquinones, squaric acid derivatives, immonium dyes, perylenes, and polymethines. Döbler does not teach boride infra red additives. Thus Döbler does not teach all elements of the claimed invention and hence cannot anticipate the claimed invention. For this reason at least, Applicants respectfully request a withdrawal of the § 102 (b) rejection over Döbler.

Claim Rejections Under 35 U.S.C. § 103(a)

Claims 9 stands rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over Döbler. (Office Action dated 12/28/2004, page 5)

In making the rejection, the Examiner has stated that "[i]t would have been prima facie obvious to include heat stabilizers in the core layer in any amount necessary to optimize the heat stabilization of the layers." (Office Action dated 12/28/2004, page 5) Applicants respectfully traverse this rejection.

For an obviousness rejection to be proper, the Examiner must meet the burden of establishing a *prima facie* case of obviousness, i.e., that all elements of the invention are disclosed in the prior art; that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combined references; and

that the proposed modification of the prior art had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In Re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d, 1016, 1023 (Fed. Cir. 1996).

In the first instance, it should be noted that Claim 9 indirectly depends from Claim 1. Claim 1 is directed to a multilayered sheet comprising a core layer wherein the core layer comprises boride infra red absorbers. As noted above, Döbler does not teach the use of borides as infra red additives. Therefore, Döbler does not teach all elements of the claimed invention.

Further, since Döbler does not teach the use of borides, one of ordinary skill in the art would not be motivated to use the heat stabilizers of Döbler. The combination of the heat stabilizers and the IR additives disclosed by Döbler would still not lead to the presently claimed invention. For these reasons at least, the Examiner has not made a prima facie case of obviousness over Döbler, and Applicants therefore respectfully request a withdrawal of the rejection and an allowance of the claim 9 over Döbler.

Claims 4 -- 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Döbler in view of U.S. Patent No. 6,060,154 to Adachi et al. (hereinafter Adachi)." (Office Action dated 12/28/2004, page 5) In making the rejection, the Examiner has stated that "Adachi teaches coating solutions for forming films, where synthetic resin binders may be included and fine particles of IR absorbers are used (abstract)." (Office Action dated 12/28/2004, page 5)

In the first instance, it must be pointed out that Claims 4 -- 5 depend from Claim 1, which is directed to a multilayered sheet comprising a core layer wherein the core layer comprises a thermoplastic polymer and boride infra red absorbers. As noted above, Döbler does not teach the use of boride infra-red absorbers. Therefore Döbler does not teach all of the claimed elements.

Adachi teaches a coating solution comprising particles having an average diameter of 100 nm or less for cutting off ultraviolet radiation. (see Abstract) Adachi teaches that lanthanum boride particles can be used in the coating. (see Abstract). Adachi teaches that the coating can comprise at least one of the alkoxides of silicon, zirconium, titanium and aluminum, and partially hydrolyzed polymers of those alkoxides, or a synthetic resin as a binder. (see Abstract) Adachi teaches that the synthetic resin is a curable resin and can be cured by using ultra-violet radiation. (Col. 4, lines 34 – 40). Adachi therefore teaches that the synthetic resin is a thermosetting resin and not a thermoplastic polymer as presently claimed. For this reason at least Adachi also does not teach all elements of the claimed invention.

Since Adachi teaches using thermosetting resins, and Döbler in paragraphs [0054] and [0055] teaches using thermoplastic resins in the core layer, one of ordinary skill in the art upon reading Döbler and Adachi would not seek to combine the two references. Thus there is no motivation for one of ordinary skill in the art to combine Döbler with Adachi in the manner made by the Examiner.

Even if one of ordinary skill were to combine Döbler with Adachi, the claimed invention would not be arrived at. In applying a coating comprising the thermosetting synthetic resin of Adachi to the multilayered heat absorbing system of Döbler, one of ordinary skill in the art would arrive at a multilayered sheet that has a core layer that comprises a thermosetting resin and a IR absorber. The present invention in contrast claims a core layer that comprises a thermoplastic polymer and a boride IR absorber.

For these reasons at least, the Examiner has not made a prima facie case of obviousness over Döbler in view of Adachi, and the Applicants respectfully request a withdrawal of the § 103 rejection over Döbler in view of Adachi.

Claims 2, 24 – 25, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Döbler in view of GB 2014513 to La Cellophane et al. (hereinafter La Cellophane)." (Office Action dated 12/28/2004, page 6) In making the rejection, the Examiner has stated that "[i]t would have been prima facie obvious to include UV absorbers in both the

lowermost and subsequent layers of Döbler's invention to prevent again and weathering of all the layers" (Office Action dated 12/28/2004, page 5 and 6)

La Cellophane teaches a transparent thermoplastic material comprising at least two superposed films, comprising a bottom film manufactured from a thermoplastic material resistant to UV radiation and others being made of a thermoplastic material that is opaque to infra-red radiation with a wavelength of over 8 microns. (see Abstract).

As noted above, Döbler does not teach all elements of the claimed invention. In particular, Döbler does not teach the use of boride infra-red absorbers in the core layer. La Cellophane also does not teach the use of boride infra-red absorbers, an thereby does not correct for the deficiency in Döbler. Thus, Döbler even in combination with La Cellophane do not teach all elements of the claimed invention.

In addition, since both Döbler and La Cellophane do not teach all of the claimed elements, one of ordinary skill in the art would have no motivation to combine them. Applicants respectfully request a withdrawal of the § 103 rejection over Döbler in view of La Cellophane.

Claims 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Döbler in view of Burkhardt et al. (listed as reference U in PTO-892) (hereinafter Burkhardt)." (Office Action dated 12/28/2004, page 7)

In making the rejection, the Examiner has stated that "[i]t is the Examiner's position that it would have been prima facie obvious to use roll mills in Döbler's coextrusion line to combine, calibrate and cool the films. (Office Action dated 12/28/2004, page 7)

Claim 26 depends from Claim 22, which as presently amended is directed to a method for manufacturing a multilayered sheet comprising disposing a first cap layer comprising a thermoplastic polymer and an ultraviolet radiation absorbing additive onto a surface of a core layer comprising a thermoplastic polymer and an IR absorbing additive, wherein the IR absorbing additive comprises borides.

As noted above, Döbler does not teach the use of borides as IR absorbers. Burkhardt teaches that convention film extrusion practices include three roll mills to calibrate and cool the

film. (see Figure 25) Burkhardt, however does not teach the use of borides as IR absorbers and therefore does not make up for the deficiency of Döbler. Thus Döbler even when combined with Burkhardt does not teach all the claimed elements.

Additionally, since neither Döbler nor Burkhardt teaches all of the claimed elements, one of ordinary skill in the art would not find any motivation to combine the references, since combining the references in the manner made by the Examiner would not result in the claimed invention. In other words, combining Döbler with Burkhardt would not result in the multilayered sheet having a core layer with boride IR absorbers as is presently claimed. Applicants respectfully request a withdrawal of the § 103 rejection over Döbler in view of Burkhardt.

Claims 13 - 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Döbler in view of U.S. Patent No. 6, 136,441 to MacGregor et al. (hereinafter MacGregor) (Office Action dated 12/28/2004, page 7)

In making the rejection, the Examiner has stated that "[i]t would have been prima facie obvious to use PCCD layers in Döbler's invention to provide films of improved weatherability, chemical resistance, and low water absorption." (Office Action dated 12/28/2004, page 7)

Claim 13 depends from Claim 1, which is directed to a multilayer sheet having a core layer that comprises a thermoplastic polymer and a boride infra-red absorber. Claims 14 – 16 are dependent from Claim 13.

As noted above, Döbler does not teach the use of boride infra-red absorbers. Döbler therefore does not teach all elements of the claimed invention.

MacGregor teaches multilayer plastic composite articles comprising a thermoplastic resin substrate and at least one surface layer comprising a cyloaliphatic polyester or cycloaliphatic polyester blend which is adherent to at least one surface of the substrate. (see Abstract) MacGregor does not teach boride infra-red absorbers and therefore does not make up for the deficiency of Döbler. Thus even if MacGregor is combined with Döbler, the multilayered sheets will not contain the boride infra-red absorbers as presently claimed. Thus, the combination of MacGregor with Döbler will not produce the claimed invention.

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Additionally, since neither Döbler nor MacGregor teaches all of the claimed elements, one of ordinary skill in the art would not find any motivation to combine the references, since combining the references in the manner made by the Examiner would not result in the claimed invention. Applicants respectfully request a withdrawal of the § 103 rejection over Döbler in view of MacGregor.

It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicants. Accordingly, reconsideration and allowance are requested.

If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 07-0862.

Respectfully submitted,

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